

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Please amend the claims as follows:

Listing of Claims:

1. (Currently Amended) A method for transmitting Internet Key Exchange (IKE) data packets across a network comprising the steps of:
 - receiving a vendor identification value from a receiving node;
 - in response to receiving the vendor identification value, using the vendor identification value to determine~~determining~~ that the receiving node is IKE fragmentation is-capable;
 - generating and transmitting an IKE packet to the receiving node over a network, the IKE packet having an original IKE header;
 - determining whether a response to the IKE packet was received within a predetermined time interval;
 - determining a maximum transmission unit size for the network;
 - fragmenting the IKE packet into a plurality of smaller packets ~~when a response is not received~~ that do not exceed the maximum transmission unit size, wherein each of the smaller packets includes a header formatted according to the IKE protocol; and
 - transmitting each of the plurality of smaller packets over a network.
2. (Previously Presented) The method of claim 1 wherein each of the smaller packets includes a header formatted according to the IKE protocol and each of the headers formatted according to the IKE protocol includes an identifier that may be used to associate the

Application No. 10/056,889

smaller packet with the IKE packet.

3. (Currently Amended) A network node that communicates with other network nodes according to the Internet Key Exchange (IKE) protocol comprising:

a User Datagram Protocol (UDP) stack that is capable of generating UDP data packets for transmission over a network;

an IKE protocol stack that generates IKE data packets that are subsequently processed by the UDP protocol stack; and

a fragmenter module that:

receives a vendor identification value from a network node and in response to receiving the vendor identification value uses the vendor identification value to determine that the network node is IKE fragmentation capable;

intercepts IKE data packets prior to being processed by the UDP protocol stack and splits the IKE data packets into a plurality of smaller data packets that may be subsequently formatted by the UDP protocol stack, wherein each of the plurality of smaller data packets includes a header formatted according to the IKE protocol and state information for network address translator processing,[[;]]

wherein the fragmenter module does not split the IKE data packets when-unless no response to a response to a previously-sent IKE data packet has been successfully received within a predetermined time intervalreceived; and

wherein each of the plurality of smaller data packets includes a header formatted according to the IKE protocol and state information for network address translator processing.

Application No. 10/056,889

4. (Canceled)

5. (Canceled)

6. (Currently Amended) A method for receiving fragmented Internet Key Exchange (IKE) data packets comprising the steps of:

sending a vendor identification value, the vendor identification value indicating the capability to process IKE fragments~~IKE fragmentation capability~~;

receiving a plurality of fragments of an IKE data packet from a transmitting node, wherein each fragment includes an identifier that associates each fragment with an IKE data packet;

discarding all fragments that contain a first identifier if a predetermined number of fragments are received that contain a second identifier; and

determining the total size of all fragments that contain the same identifier and discarding said fragments when the total size exceeds a predetermined limit.

7. (Original) The method according to claim 6 wherein the step of discarding all fragments that contain a first identifier is performed when at least one fragment is received that contains a second identifier.

8. (Original) The method according to claim 6 further comprising the steps of:
determining whether all fragments that are associated with an IKE data packet have been received; and

sending a no acknowledgment (NAK) message to the transmitting node when at least one fragment has not been received.

9. (Canceled)

10. (Previously Presented) The method according to claim 6 wherein the predetermined limit is 64 kilobytes.

11. (Currently Amended) A system for transmitting Internet Key Exchange (IKE) protocol data packets across a network comprising:

means for generating an IKE packet;

means for initializing, operating, and monitoring a timer;

means for detecting whether the IKE packet was successfully received at an[[the]] intended receiver node before the expiration of the timer;

means for receiving a vendor identification value from the receiver node and using the vendor identification value to determine that the receiver node is IKE fragmentation capable;

means for fragmenting the IKE packet into smaller packets when the IKE packet was not successfully received at the receiver node;

means for adding a separate IKE fragment header to each of the smaller packets;

means for adding state information to each of the smaller packets for network address translator processing;

means for adding a separate User Datagram Protocol header to each of the plurality of smaller packets; and

means for transmitting each of the plurality of smaller packets over a network.

12. (Original) The system of claim 11 further comprising means for determining the capability of the receiver node for receiving fragmented packets.

13. (Currently Amended) A method for transmitting data packets across a network comprising the steps of:

Application No. 10/056,889

generating and transmitting an Internet Key Exchange (IKE) packet over a network to a receiving node, the IKE packet having an original IKE header;

fragmenting of the IKE packet by an IP protocol layer;

determining whether a response to the IKE packet was received within a predetermined time interval;

using a vendor identification value received from the receiving node to determine whether the receiving node is capable of processing IKE fragments;

fragmenting the IKE packet into a plurality of smaller IKE packets to avoid the fragmenting of the IKE packet by the IP protocol layer ~~when a response is not received;~~

adding a separate IKE fragment header to each of the plurality of smaller IKE packets, wherein one of the plurality of smaller IKE packets includes the original IKE header;

adding state information to each of the plurality of smaller IKE packets for network address translator processing;

adding a separate User Datagram Protocol header to each of the plurality of smaller IKE packets; and

transmitting each of the plurality of smaller IKE packets over a network.

14-15. (Canceled)

16. (Previously Presented) The method of claim 13 wherein the plurality of smaller packets contain the same information as that contained within the original IKE packet.

17. (Canceled)

18. (Currently Amended) A method for transmitting data packets across a network comprising the steps of:

receiving a vendor identification value from a receiver node;

Application No. 10/056,889

in response to receiving the vendor identification value, using the vendor identification value to determine~~determining~~ that the receiver node is IKE fragmentation ~~is~~ capable;

generating a data packet containing Internet Key Exchange (IKE) information the data packet having an original IKE header;

initializing a timer;

determining, based at least in part on the expiration of the timer, whether fragmentation of the data packet is necessary to successfully transmit the IKE information to the receiver over a network;

fragmenting the data packet if necessary into a plurality of smaller packets that may be transmitted over a network;

adding a separate IKE fragment header to each of the plurality of smaller packets, wherein one of the plurality of smaller packets includes the original IKE header;

adding state information to each of the plurality of smaller packets for network address translator processing; [[and]]

adding a separate User Datagram Protocol header to each of the plurality of smaller packets; and

transmitting each of the plurality of smaller packets over a network.

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Previously Presented) A method for intelligently discarding fragmented Internet Key Exchange (IKE) data packets to efficiently manage resources comprising:

sending a vendor identification value, the vendor identification value indicating that a

receiving node is capable of processing IKE fragments~~IKE fragmentation capability;~~

receiving a plurality of fragments of a single IKE data packet, wherein the fragments were transmitted from a transmitting node in an order that can be determined from information contained within the received fragments;

determining from information contained within the received fragments whether any of the received fragments have been received in an order that differs from the order in which the fragments were transmitted from the transmitting node; and

discarding at least certain of the received fragments when a predetermined number of out of order fragments from a single IKE data packet have been received.

23. (Previously Presented) The method of claim 22 further including the step of sending a message to the transmitting node that out of order packets have been received.